

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20054**

In the Matter of )  
 )  
SPECTRUM NEEDS OF EMERGENCY ) WT Docket No. 05-157  
RESPONSE PROVIDERS )

To: The Commission

## JOINT COMMENTS OF NPSTC and APCO

The Association of Public-Safety Communications Officials-International, Inc. (“APCO”) and the National Public Safety Telecommunication Council (NPSTC), hereby submit the following comments in response to the Commission’s *Public Notice*, FCC 05-80, released March 29, 2005, in which the Commission seeks input for a report mandated by Section 7502 of the Intelligence Reform and Terrorism Prevention Act of 2004.

APCO is the nation's oldest and largest public safety communications organization. Founded in 1935, APCO has 16,000 members, most of whom are state or local government personnel involved in the management and operation of communications systems for police, fire, emergency medical, forestry conservation, highway maintenance, homeland security, and other critical public safety agencies. APCO is a certified frequency coordinator for Part 90 Public Safety Pool channels, and appears regularly before the FCC on a wide variety of matters related to public safety communications. APCO is a charter member of the National Public Safety Telecommunications Council and is represented on the Department of Homeland Security SAFECOM Program Executive Committee.

Formed on May 1, 1997, NPSTC is a federation of associations representing public safety telecommunications. NPSTC currently consists of the following thirteen organizations:

American Association of State Highway and Transportation Officials

American Radio Relay League  
American Red Cross  
Association of Public-Safety Communications Officials-International  
Forestry Conservation Communications Association  
International Association of Chiefs of Police  
International Association of Emergency Managers  
International Association of Fire Chiefs  
International Association of Fish and Wildlife Agencies  
International Municipal Signal Association  
National Association of State Emergency Medical Services Directors  
National Association of State Telecommunications Directors  
National Association of State Foresters.

NPSTC was originally formed to encourage and facilitate implementation of the findings and recommendations of the Public Safety Wireless Advisory Committee (PSWAC), established in 1994 by the Federal Communications Commission (FCC) and National Telecommunications and Information Administration (NTIA) to evaluate the wireless communications needs of local, tribal, State, and Federal public safety agencies through the year 2010, identify problems, and recommend possible solutions.

NPSTC has since taken on additional responsibilities including implementing the recommendations of the National Coordination Committee (NCC) and the support and development of the Computer Assisted Pre-coordination and Resource Database System (CAPRAD) for 700 MHz spectrum to assist the Regional Planning Committees (RPCs). NPSTC develops and makes recommendations to appropriate governmental bodies regarding public safety communications issues and policies that promote greater interoperability and cooperation between Federal, State and local agencies. Issues include: Spectrum Resources, 800 MHz rebanding, 700 MHz, 4.9 GHz, Software Defined Radio (SDR), US/Canadian/DTV Transition, Project MESA, Amateur Radio, Regional Planning Committees (RPCs), State Interoperability Executive Committees (SIECs), Broadband, and the International Telecommunications Union.

Section 7502(a) of the Intelligence Reform and Terrorism Prevention Act of 2004 provides that,

The Federal Communications Commission shall, in consultation with the Secretary of Homeland Security and the National Telecommunications and Information Administration, conduct a study to assess short-term and long-term needs for allocations of additional portions of the electromagnetic spectrum for Federal, State, and local emergency response providers, including whether or not an additional allocation of spectrum in the 700 megahertz band should be granted by Congress to such emergency response providers.<sup>1</sup>

Section 7502(c) provides that, in conducting this study, the Commission shall

(1) seek input from Federal, State, local, and regional emergency response providers regarding the operation and administration of a potential nationwide interoperable broadband mobile communications network; and

(2) consider the use of commercial wireless technologies to the greatest extent practicable.<sup>2</sup>

APCO and NPSTC are pleased to provide the following comments to assist the Commission in fulfilling its requirements under the Act.

Long before 2001, APCO, NPSTC, and others in the public safety community urged Congress and the FCC to allocate additional radio spectrum to address critical public safety requirements. The most comprehensive study of those spectrum requirements was completed in 1996 by the Public Safety Wireless Advisory Committee (“PSWAC”). PSWAC recognized that far more spectrum was necessary for public safety. Spectrum was needed to alleviate congestion on existing systems, to promote interoperability among disparate users, and to facilitate the deployment of new data and video technologies. PSWAC concluded that a total of 97.5 MHz of additional spectrum would be needed by 2010, including 2.5 MHz “immediately” for interoperability, 25 MHz

---

<sup>1</sup> *Id.*, § 7502(a), 118 Stat. at 3855-56.

<sup>2</sup> *Id.*, § 7502(c), 118 Stat. at 3856.

from the TV channel 60-69 spectrum within five years, and 70 MHz for high speed data communications.<sup>3</sup>

Today, it appears that public safety spectrum needs are even greater than PSWAC anticipated. For planning purposes, PSWAC assumed that “spectrum refarming” or “narrowbanding” could result in spectrum efficiency gains of 4:1 by the year 2010, compared to one voice path per 25 kHz prevalent at the time of the report. It was anticipated that most public safety systems would be moving toward this 4:1 efficiency by that date.<sup>4</sup> The reality is that even the most limited benefits of narrowbanding will not be fully realized until at least 2013, when all systems operating on bands below 512 MHz will be required to implement 12.5 kHz channels, i.e., a 2:1 efficiency improvement. The 6.25 kHz technology contemplated by PSWAC is still many years from initial implementation.

Second, the events of 9/11 and the subsequent nationwide focus on improved homeland security have placed new, unanticipated demands on public safety agencies and their communications systems. Today, even more than in 1996, there is an emphasis on more efficient and cooperative public safety efforts, which in turn require more extensive, more interoperable, and more effective communications networks. Communications tools are also essential for expanded activities such as securing borders and sensitive facilities, surveillance, and preparing for and responding to terrorists attacks. Local public safety agencies must take on these new and expanded tasks while also continuing in their core day-to-day public safety services, often with fewer

---

<sup>3</sup> See Final Report of the Public Safety Wireless Committee to the Federal Communications Commission and the National Telecommunications and Information Administration, Public Safety Wireless Committee, September 11, 1996 (PSWAC Final Report).

<sup>4</sup> PSWAC Final Report at page 43, 4.2.4.1.

personnel than in the past. All of these developments place greater reliance on radio communications than ever before.

### **PUBLIC SAFETY NEEDS ADDITIONAL SPECTRUM IN THE 700 MHz BAND FOR MOBILE BROADBAND CAPABILITY**

One of the most critical recommendations of PSWAC was that approximately 25 MHz be reallocated for public safety from the spectrum occupied by TV channels 60-69 (746-806 MHz). Congress responded with a provision in the Balanced Budget Act of 1997 requiring the Commission to allocate 24 MHz from that band for public safety. However, as the Commission is well-aware, Congress restricted public safety use of that spectrum pending completion of the digital television (DTV) transition. Hopefully, Congress will resolve that issue this year and adopt a date-certain by which the spectrum in the 700 MHz band will be available nationwide for public safety and other users.

While the 24 MHz previously allocated will address many public safety communications requirements, by itself, it will not respond to public safety's growing need for wide-area, broadband mobile communications. PSWAC anticipated this requirement, and identified a need for over 90 MHz of spectrum for "wideband data and video."<sup>5</sup> A small portion of that "wideband" capability will be provided in the 24 MHz allocation, where spectrum has been set aside for 150 kHz wide data channels. Certain broadband needs can also be accommodated in the new 4.9 GHz public safety band, but not for wide area or mobile applications. The propagation characteristics of 4.9 GHz are such that the band will be used primarily for very short distance operations, such as incident command video and data transmission.

---

<sup>5</sup> See PSWAC Final Report, Appendix D, page 8, Table 1 (PSWAC Volume 2, page 608).

Public safety agencies are increasingly recognizing the need for mobile broadband capability. Real time, full motion video from any location in an agency's area of jurisdiction to any other location could be an invaluable tool for all elements of public safety, especially for command and control functions. Incident command structures are now recognized as essential for managing first responders' activities in the field. Live video from an emergency scene to a command center that may be many miles away will provide police chiefs, fire chiefs, emergency managers, and others the ability to use scarce public safety resources in the most effective and efficient manner possible.

Aside from video, public safety officials need the ability to access from the field building diagrams, mug shots, hazardous material information, criminal suspect information, and a plethora of other data. As with any other electronic data transfer, the greater the available bandwidth, the faster such information can be delivered. Especially, when public safety is at risk, speed is obviously critical. A police officer cannot be expected to stand by while a mugshot slowly downloads over a narrow bandwidth.

As noted above, the current 700 MHz allocation for public safety includes some channels that the FCC has allotted for "wideband" (150 kHz) use. While that will provide important new data capabilities, it does not allow for "broadband" service needed for wide area networks with extensive mobile transfer capability, for multiple video channels, or other high speed data transfers.

APCO and NPSTC have not had an opportunity to conduct an updated quantitative analysis of the amount of spectrum needed for public safety to deploy mobile broadband networks. We note that the District of Columbia is currently testing a broadband public safety system that would

be precursor to a 10 MHz broadband system. Others have suggested that as much as 30 MHz may be required to accommodate local, state and federal public safety broadband requirements.

Section 7502, specifically instructs the Commission to explore the potential for a “nationwide interoperable broadband mobile communications network.” Such a network could allow agencies to tap into an existing network anywhere, anytime, presumably with standardized, interoperable equipment. Assuming significant federal funding, a nationwide network of this nature could also help ease the financial burden on state and local agencies that need broadband capability, but cannot afford the price tag. On the other hand, the price of a truly “nationwide” broadband network would be enormous. An alternative approach would be to construct regional networks, focusing on areas with the greatest demand.

#### **PUBLIC SAFETY NEEDS ADDITIONAL SPECTRUM IN THE VHF HIGH BAND**

Aside from spectrum for broadband, public safety also requires additional spectrum to promote more efficient, interoperable systems in the VHF High Band band. There are more public safety licensees in the VHF High Band than in any other band. The band is overcrowded, with virtually no opportunity for expanded operations. In most areas, the absence of paired channels, and “short spaced” adjacent channel and co-channel assignments have prevented licensees from implementing trunking and other more efficient technologies. Narrow banding will provide some limited relief for the VHF High Band, but not until the end of 2013, at the earliest. Additional spectrum in the band would provide capacity for new interoperability channels and “green space” to facilitate more efficient channel assignments and, potentially, expanded use of trunking technology.

#### **PUBLIC SAFETY NEEDS ACCESS TO ADDITIONAL SPECTRUM IN THE 900 MHz BAND**

Public Safety has a need for a few 900 MHz paging frequencies in the 900 MHz

band. Many agencies throughout the nation are exploring the option of digital one, and two way paging to support dispatch operations. This need is driven by two factors. The narrow banding of VHF is making the traditional tone and voice paging harder to support. Also, the need to automate dispatching via computer aided dispatching makes digital paging systems very helpful to increase the timeliness and accuracy of dispatch functions.

APCO and NPSTC recommend that the Business, Industrial and Land Transportation (B/ILT) pools in the 896-901/935-940 MHz (900 MHz) bands be made available for public safety paging system use.

APCO and NPSTC further recommend that the Commission conduct an audit of the 900 MHz paging frequencies to determine if any are under utilized due to the consolidation of the paging industry. If any are found to be not in use, some or all could be made available for public safety use.

## **MISSION CRITICAL PUBLIC SAFETY COMMUNICATIONS ARE UNLIKELY TO BE PROVIDED BY COMMERCIAL SERVICES**

Section 7502(C)(2) of the Intelligence Reform and Terrorism Prevention Act of 2004, requires that the FCC, as part of its mandated study, “consider the use of commercial wireless technologies to the greatest extent practicable.” It is unclear from the provision whether it is intended to address use of commercial “technologies” on private, dedicated public safety spectrum,

or whether it refers to public safety use of commercial services. If the former, then there is no question that many of the broadband technologies being deployed today could be adapted to public safety operations. The technology, *i.e.*, the ability to transmit certain types of information over particular formats and across particular frequency bands, is certainly transferable across commercial and public safety operational lines.

However, we presume that Section 7502 was intended to address the more controversial issue of public safety use of commercial networks and systems. Public safety agencies already use commercial networks and systems in many cases for their *non*-mission critical communications. Continued commercial use of this nature is likely, especially to the extent that future commercial systems are able to dedicate significant portions of their networks for exclusive public safety use. However, for *mission critical* public safety communications, there are likely to continue to be significant constraints on the ability to rely upon commercial services. These constraints relate to public safety agencies' unique needs for geographic coverage, reliability, access, predictability and security.

Commercial networks are usually built to cover areas based upon consumer needs (populated areas, major highways, shopping centers, etc), and typically have coverage gaps in less populated or otherwise commercially undesirable areas. However, a public safety agency must have ubiquitous coverage throughout its area of jurisdiction. That includes remote and unpopulated areas, valleys, under bridges, behind mountains, and inside buildings. There is seldom a strong economic case for commercial systems to construct a system with sufficient signal strength to reach such difficult locations.

Reliability is especially important for public safety agencies. Public safety systems must be “hardened” to withstand severe weather and (in some areas) earthquakes.<sup>6</sup> Systems are typically built with redundancy and extremely low predicted outage time. Again, the cost of such reliability protections is seldom within reach of a commercial network. Not surprisingly, recent hurricanes have knocked out cellular and other commercial services, while public safety radio systems remained on the air.

Public safety agencies also require immediate, unconstrained access to their communications networks. They cannot wait for a “dial-tone,” for a channel to clear, or for those otherwise sharing channels to cease communications. Such instant access is difficult to provide on many commercial networks. If commercial systems were “shared,” public safety would require “ruthless preemption” of bandwidth, often at the same time that commercial customers were also demanding access to the system. Predictable service is also critical for state and local governments, especially for their mission critical communications. They must be able to operate without concern that their communications systems will be impacted by business disruptions, contract disputes, system ownership changes, or unexpected modifications to system design or fee structures. Only private, dedicated networks provide protection against such unpredictability.

Finally, security is increasingly a critical issue for public safety networks, especially for homeland security operations. While some commercial networks can be adequately secured, fewer security concerns exist for internal, non-public networks.

---

<sup>6</sup> "During last year's hurricane season, the Orlando/Orange County area of Florida experienced a period of over 5 days with *no* commercial wireless service from any provider. During this same period, the public safety (primarily 800 MHz trunking) systems remained fully operational."

Therefore, while commercial network may well provide certain types of communications capability for public safety, we believe that it will be extremely difficult for commercial networks to address mission critical communications needs.

Respectfully Submitted,

ASSOCIATION OF PUBLIC SAFETY-COMMUNICATIONS OFFICIALS-INTERNATIONAL  
Greg Ballentine, President  
351 N. Williamson Blvd.  
Daytona Beach, FL 32114-1112  
386-322-2500

NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL  
Vincent Stile, Chair  
68 Inverness Lane East  
Englewood, CO 80112  
866-807-4755

April 28, 2005